Gefen®

DVI RS232 Extender over CAT5 with Ethernet

EXT-DVI-CAT5-ELR User Manual

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Notice

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INTRODUCTION

Congratulations on your purchase of the DVI RS232 Extender over CAT5 with Ethernet. Your complete satisfaction is very important to us.

Gefen

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to install and simple to operate.

The Gefen DVI RS232 Extender over CAT5 with Ethernet

The DVI RS232 Extender over CAT-5 with Ethernet extends any DVI source to a monitor, touch screen display, or other digital signage application placed at a distance up to 330 feet (100 meters) using one CAT-5 cable. This product also extends Ethernet and RS-232 using the same CAT-5 cable extension, allowing access to control devices using RS-232.

How It Works

Place the Sender Unit next to the DVI input source. Use the included DVI cable to connect the source to the Sender Unit. Connect the Receiver Unit to the monitor or Digital Signage display with a DVI cable (not supplied). Use one CAT-5 cable, up to 330 feet (100 meters), to connect the Sender Unit to the Receiver Unit. Connect an RS-232 serial cable from the RS-232 port on the Sender Unit to the RS-232 control device. Connect the RS-232 port on the Receiver Unit to the RS-232 device. Connect the Ethernet ports on both the Sender Unit and the Receiver Unit to any computer source and extended Ethernet device.

PLEASE READ THESE NOTES BEFORE INSTALLING OR OPERATING THE DVI RS232 EXTENDER OVER CAT5 WITH ETHERNET

- CAT-5 or CAT-6 cables should not exceed 330 feet (100 meters).
- Shielded (STP) CAT-5 or CAT-6 is recommended. However, un-shielded (UTP) CAT-5 or CAT-6 is acceptable.

  NOTE: The shielded cable has an advantage by providing immunity to Electromagnetic Interference (EMI), cell phones and A/C motors.
- The DVI RS232 Extender over CAT5 with Ethernet features the ability to generate compatible EDID and Hot Plug signals when working with different brands of source devices and monitors.
- This product does not support HDCP content with DVI.

FEATURES

Features

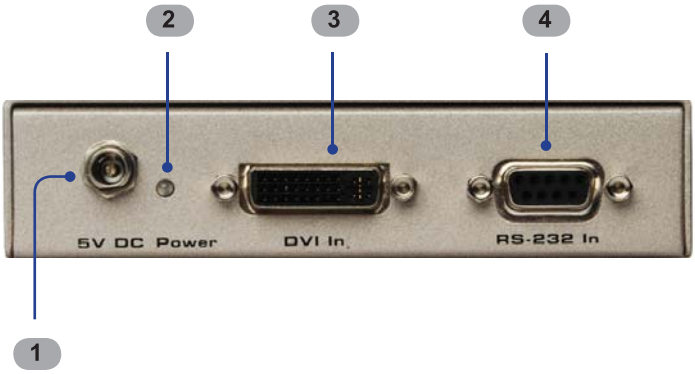
- Extends any DVI, RS-232, and Ethernet devices up to 330 feet
- Supports resolutions up to 1080p, 2K, and 1920x1200
- Excellent for digital signage applications
- Maximum Ethernet throughput of 100 Mbps, Full Duplex mode.
- Uses one CAT-5e cable for DDC and control signals.
- All-digital signal transmission for zero signal loss.
- Locking power connectors.
- Low power consumption (Green Mode) when DVI source is not detected.
- Field-upgradable via RS-232.
- Metal enclosure improves RF shielding.

Package Includes

(1) Gefen DVI RS232 Extender over CAT5 with Ethernet Sender unit
(1) Gefen DVI RS232 Extender over CAT5 with Ethernet Receiver unit
(1) 6 ft. DVI Cable (M - M)
(2) 5V DC Locking Power Supplies
(2) Mounting Plates
(1) User Manual

SENDER UNIT LAYOUT

Front



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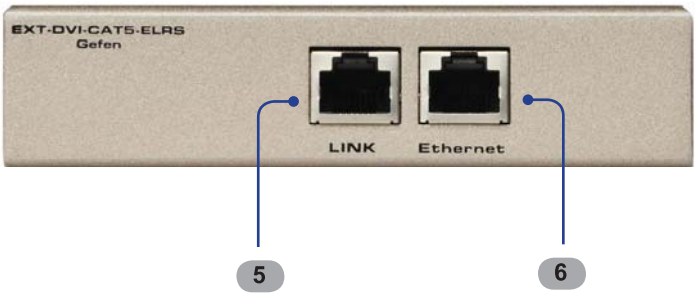


SENDER UNIT DESCRIPTIONS

1 ***5V DC Locking Power Connector***
Connect the included 5V DC locking power supply to this connector.

2 ***Power Indicator***
This two-color LED lights up red when there is no DVI source, and lights up green when a DVI source is present

3 ***Locking DVI Port***
Connect a DVI source to this port.

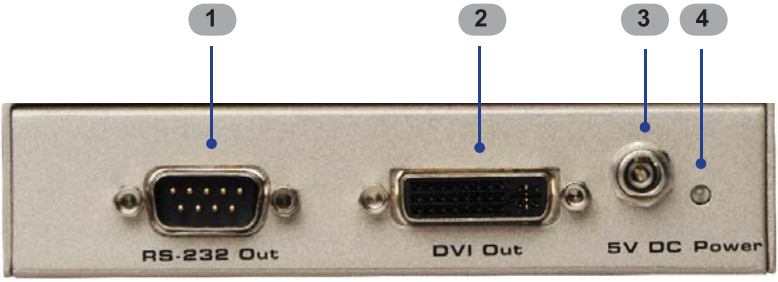
4 ***RS-232 Port***
Connect the RS-232 host device to this port.

5 ***Link Output Jack***
Connects the Sender Unit to the Receiver Unit using a CAT-5 cable.

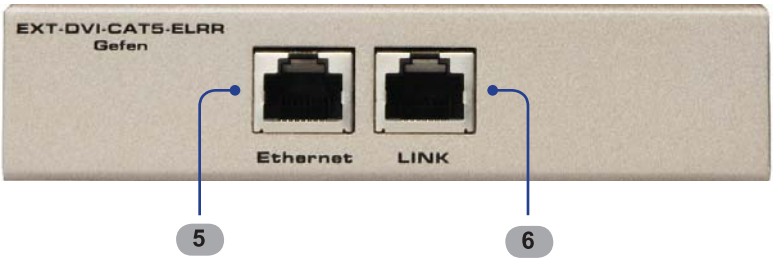
6 ***Ethernet Input Jack***
Connects the Sender Unit to the network using an Ethernet cable.

RECEIVER UNIT LAYOUT

Front



Back



RECEIVER UNIT DESCRIPTIONS

1 RS-232 Port
Connect the RS-232 device to this port.

2 Locking DVI Port
Connect a DVI source device to this DVI port.

3 5 V DC Locking Power Connector
Connect the included 5V DC locking power supply to this connector.

4 Power Indicator
This LED will turn bright red once the included 5V DC locking power supply has been properly connected to the unit and the locking power supply has been connected to an available electrical outlet. The LED will glow bright green when a DVI source is detected.

5 Ethernet Output Jack
Connects the Receiver Unit to the network device.

6 Link Input Jack
Connects the Sender Unit to the Receiver Unit using CAT-5 cabling.

CONNECTING
THE DVI RS232 EXTENDER OVER CAT5 WITH ETHERNET

How to Connect the DVI RS232 Extender over CAT5 with Ethernet

1. Connect the DVI source to the Sender Unit using the provided DVI cable. Connect the DVI monitor to the Receiver Unit using a DVI cable.

2. Connect an Ethernet cable from the device/router to the Ethernet input port on the Sender Unit with a CAT-5e or CAT-6 cable.

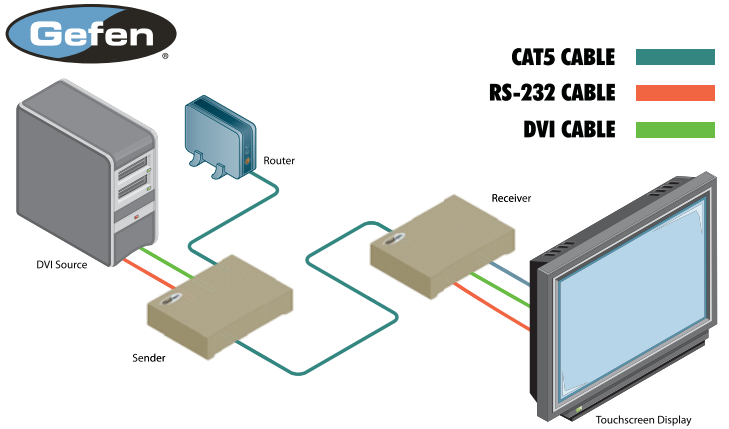
3. Connect the Ethernet output port on the Receiver Unit to the remote device/ router with a CAT-5e or CAT-6 cable.

4. Connect a CAT-5e or CAT-6 cable between the Link port on the Sender Unit and the Link port on the Receiver Unit.

   NOTE: If terminating network cables in the field, please adhere to the TIA/ EIA568B specification (please see page 13).

5. Connect the 5V DC locking power supplies to the Sender Unit and Receiver Unit. Do not overtighten the locking connectors. Plug the two (2) power supplies to an available electrical outlet.

Wiring Diagram for the DVI RS232 Extender over CAT5 with Ethernet



EXT-DVI-CAT5-ELR

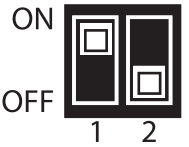
WARNING: This product should always be connected to a grounded electrical socket.

DIP Switch Location

On the bottom of the DVI RS232 Extender over CAT5 with Ethernet Receiver unit there are four (4) DIP switches. The Sender Unit has two DIP switches.

The DIP switches allow advanced EDID management of the DVI RS232 Extender over CAT5 with Ethernet which may be necessary when using different brands of hardware. The DIP switches allow control over the EDID, HPD (Hot Plug Detect), and RS-232 modes.

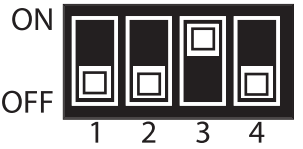
Sender Unit DIP Switches



Default settings for Sender DIP switches

DIP Switch	Position
1	ON
2	OFF

Receiver Unit DIP Switches



Default settings for Receiver DIP switches

DIP Switch	Position
1	OFF
2	OFF
3	ON
4	OFF

Sender Unit

DIP 1 - ON

ON (default) - Disable

- Power is always on.

OFF - Enable

- Power is enabled only if the DVI source is connected and active. If the DVI source enters standby mode then both the Sender Unit and Receiver Unit will enter Green Mode. In Green Mode, both the Sender and Receiver Unit will each consume less than 1 W of power.

DIP 2 - OFF

ON - Enable Field Upgrade Mode

- Allows the firmware to be upgraded on the Sender Unit. If DIP switch 4 is in the ON position, RS-232 cannot be extended. See page 15 for details on upgrading the firmware.

OFF (default) - RS-232 Pass-through

- Use when extending RS-232 between the Sender Unit and the Receiver Unit. DIP switch 4 must be set to the OFF position for normal operation of the DVI RS232 Extender over CAT5 with Ethernet.

DIP SWITCH CONFIGURATION

Receiver Unit

DIP 1 - OFF

ON - External EDID Mode

- DDC and HPD are passed through. Both the connection status and the full video capabilities of the monitor. The HPD status will also be detected by the source device.

OFF (default) - Internal EDID Mode

- Local EDID is used instead of the EDID from the display device. EDID features newer than HDMI 1.3 are removed when the display is read. This provides a general EDID which is compatible with more displays.

DIP 2* - OFF

ON - HPD Pass-Through

- HPD follows upstream HPD towards the source. The HPD signal will reflect the connection status between the display device and the source device. If the source or monitor is temporarily disconnected then reconnected, there will be a delay of 20 - 30 seconds before the content is restored to the monitor.

OFF (default) - HPD Always High

- The HPD signal remains high regardless of the downstream HPD state. If the source or monitor does not properly handle HPD (no picture after connecting / reconnecting source or display), set this DIP switch to the OFF position.

**DIP switch is only functional when DIP switch 1 is set to OFF.*

Receiver Unit

DIP 3* - ON

ON (default)

- If a DVI connection is used, set DIP 3 to the ON position. DVI is supported by disabling HDCP pass-through.

OFF

- If HDMI is connected, set DIP 3 in the OFF position.

**DIP switch is only functional when DIP switch 1 is set to OFF.*

IMPORTANT: The Green Mode feature on the Receiver unit is not implemented on hardware versions prior to 9502. Check the hardware version, printed on the bottom of the Receiver unit. For example, the sample image below indicates hardware version 9401 which does *not* have the Green Mode feature.

DIP 4 - ON

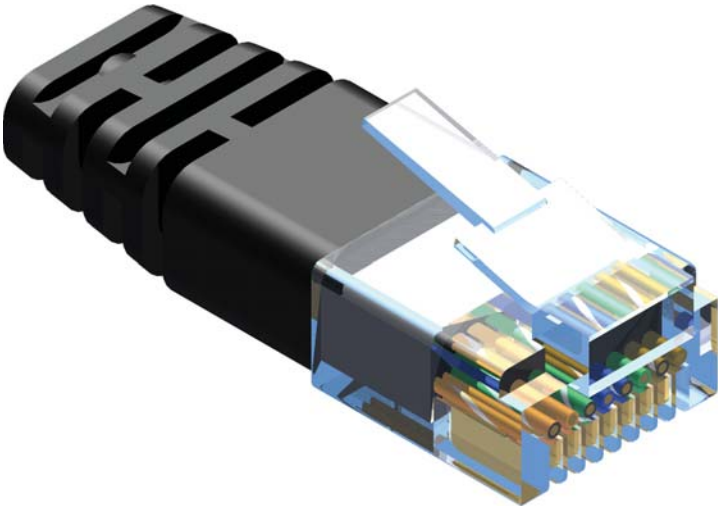
OFF - Enable Green Mode

- When DIP switch 1 is set to the OFF position, the Receiver unit is powered only when 5V is present on the HDMI / DVI cable. Automatic Power Mode consumes less than 1 Watt of power.

ON - Disable Green Mode

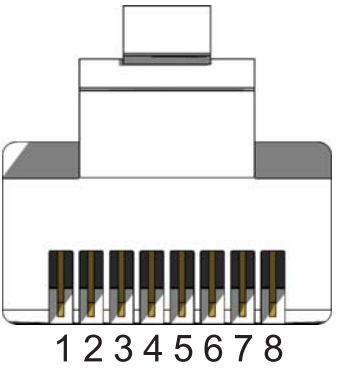
- If DIP switch 1 is set to the ON position, then the Receiver unit is placed in Power Always Mode. In this mode, the Receiver unit is always powered.

NETWORK CABLE WIRING DIAGRAM



Gefen recommends the TIA/EIA-568-B wiring option. Please adhere to the table below when field terminating cable for use with Gefen products.

Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown



CAT-5, CAT-5e, and CAT-6 cabling comes in stranded and solid core types. Gefen recommends using solid core cabling. CAT-6 cable is also recommended.

It is recommended to use one continuous run from one end to the other. In some cases, connecting through a patch might not work.

Updating the Firmware

STOP: Before beginning the update process, disconnect the Sender unit from the Receiver unit.

1. Connect an RS-232 cable from the computer to the Sender Unit.
2. Set DIP switch 2 on the Sender unit to the ON position.
3. Connect the 5V DC locking power supply to the Sender Unit.
4. Go to the directory where the firmware files are stored.
5. Double-click the .BAT file. A screen similar to the following will appear:

```
Found sink on port 4
Autodetect platform: full sink
Autodetect platform: spi.
Autodetect size: 128k
Erasing Eeprom....Done.
progress: 100%
Total bytes: 38804. Total time: 99.906000 seconds
Burn succeeded.
Verifying file...
progress: 100%
Total bytes: 38804. Total time: 88.266000 seconds
Verification succeeded!!!
```

6. Return DIP switch 2 to the OFF position.
7. To update the firmware on the Receiver unit, set ALL DIP switches on the Receiver unit to the ON position.
8. Connect the 5V DC locking power supply to the Receiver unit.
9. Repeat steps 4 and 5.
10. The firmware update process is complete.

SPECIFICATIONS

Maximum Pixel Clock ..... 225 MHz

Input Video Signal ..... 1.2V p-p

Input DDC Signal ..... 5V p-p (TTL)

Max. Video Resolution Supported .....1080p / 1920x1200

Max. Ethernet Data Transfer Rate..... 100 Mbps

Ethernet Packet Transmission Mode .....Full Duplex

DVI Connectors ..... Type-A 19-Pin (F)

Link Connector ..... RJ-45 Shielded

Power Indicator.....LED (red)

Power Supply ..... 5 V DC

Power Consumption ..... 10W per unit (max.)

Operating Temperature .....0 ~ 40 °C

Dimensions ..... 3.4” L x 3.25” W x 1.25” H

Shipping Weight ..... 3 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

PRODUCT REGISTRATION

Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.

Rev A10

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This product uses UL listed power supplies.